**AP Stat NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Fathom Scatterplots**

**Making Scatterplots**

Use the NCAA 2006 collection again (reminder: this can be found in my SHARE folder)

1. Put the collection into fathom
2. Open the collection (double click on it)

Let’s make a scatterplot of “Attempts” versus “Touchdowns”

1. Drag down a new graph. Grab the attribute “ATT” and drag it to the x-axis.
2. Grab the attribute “TD” and drag it to the y-axis of the graph.
3. Describe the graph:



**Finding correlation coefficient**

1. Drag down a new summary table.
2. Drag the attribute “ATT” to the left row



1. Drag to the top column the attribute “TD”
2. The correlation coefficient should be stated in the center.

**Finding the LSR line, and the Residual plot**

1. While the scatterplot is highlighted, go to the drop-down menu GRAPH and click on “Least-Squares line”
2. You will notice that the LSR line has been added to your scatterplot and the equation and r2 are listed down at the bottom of the plot. Write them here:
3. To make the residual plot: Make sure the graph is still highlighted, and go to the drop-down menu GRAPH again, and this time click on “Make Residual Plot”
4. The residual plot will appear below the scatterplot. Make the entire picture bigger so you can clearly see the residual plot. What does this residual plot tell you about your model? Is “attempts” a good predictor of “touchdowns?”
5. Close the Fathom document without saving.

**Entering Data**

1. Open a new Fathom document.
2. Drag down a new collection.
3. Drag down a table, click on “<new>” and type in “X” and hit enter.
4. Repeat and put in the attribute “Y”
5. Enter the values from the table below:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| x | 1 | 2 | 4 | 5 | 6 | 7 | 2 | 4 | 3 | 9 | 10 | 7 |
| y | 2 | 4 | 3 | 8 | 10 | 9 | 5 | 7 | 9 | 15 | 11 | 10 |

1. Create a scatterplot and a summary table showing the correlation coefficient. Describe the scatterplot below and write the correlation below
2. Now create the LSR line and find r2. Write them below. Also, add the residual plot. Make the graph bigger.

**Playing with scatterplots.**

Use the Fathom document you just created.

1. Move points around randomly and watch how it changes the correlation. You can move points by clicking on them and dragging them.
2. Move points until *r* = 1. What scatterplot do you get? (briefly describe it) What residual plot?
3. Move points until *r* = -1. What scatterplot do you get? What residual plot?
4. Move points until *r* = 0. What scatterplot do you get? What residual plot?
5. Move points around to make the picture described below. Try not to include outliers. State the correlation.
   1. A “U” shape. *r* = \_\_\_\_\_
   2. A strong, positive ***curve***. *r* = \_\_\_\_\_
   3. A moderately strong, negative ***curve***. *r* = \_\_\_\_\_